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at least two antennas for transmitting a space-time coded signal created by said space-time encoder, modulated by said modulator, and conditioned by said pulse shaping circuitry.

5. The transmitter of claim 4 where said demultiplexer develops an  $L$  plurality of signal streams, where said channel coders in said  $L$  channel coding/space-time coding transmitters develop rates  $R_i$   $i=1,2,\dots,L$ , that are not identical to each other.

6. The transmitter of claim 4 where said demultiplexer develops an  $L$  plurality of signal streams, where said channel coders in said  $L$  channel coding/space-time coding transmitters develop rates  $R_i$   $i=1,2,\dots,L$ , that are such that  $R_1 > R_2 > \dots > R_L$ .

A<sup>1</sup> Subj X (Amended) The transmitter of claim [1] 3 where said channel code encoder performs trellis encoding.

8. The transmitter of claim 1 where said channel code encoder performs convolutional encoding.

Delete claims 9 and 10.

X2  
11. (Amended) A receiver comprising:  
a detector of space-time coded signal; and  
a decoder for decoding a channel code encoded signal that is embedded in output signals of said detector, [The receiver of claim 9] where said detector employs a two step algorithm to develop a weights vector for canceling interfering signals from terminals other than a given terminal whose signal is being detected.

12. The receiver of claim 11 where said two step algorithm is:

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 $(\hat{\mathbf{c}}, \hat{\mathbf{s}}) = \text{II. DECODE}(\mathbf{r}_1, \mathbf{r}_2, \mathbf{H}_1, \mathbf{H}_2, \mathbf{G}_1, \mathbf{G}_2, \Gamma)$ 
{
     $(\hat{\mathbf{c}}_o, \Delta_{c,o}) = \text{MMSE. DECODE}(\mathbf{r}_1, \mathbf{r}_2, \mathbf{H}_1, \mathbf{H}_2, \mathbf{G}_1, \mathbf{G}_2, \Gamma)$ 
     $\mathbf{x}_1 = \mathbf{r}_1 - \mathbf{H}_1 \cdot \hat{\mathbf{c}}_o \quad , \quad \mathbf{x}_2 = \mathbf{r}_2 - \mathbf{H}_2 \cdot \hat{\mathbf{c}}_o$ 
     $f(\mathbf{s}) = \|\mathbf{x}_1 - \mathbf{G}_1 \cdot \mathbf{s}\|^2 + \|\mathbf{x}_2 - \mathbf{G}_2 \cdot \mathbf{s}\|^2$ 
     $\hat{\mathbf{s}}_o = \arg \min_{\mathbf{s} \in \mathbf{S}} (f(\mathbf{s})) \quad , \quad \Delta_{s,o} = f(\hat{\mathbf{s}}_o)$ 

     $(\hat{\mathbf{s}}_1, \Delta_{s,1}) = \text{MMSE. DECODE}(\mathbf{r}_1, \mathbf{r}_2, \mathbf{G}_1, \mathbf{G}_2, \mathbf{H}_1, \mathbf{H}_2, \Gamma)$ 
     $\mathbf{y}_1 = \mathbf{r}_1 - \mathbf{G}_1 \cdot \hat{\mathbf{s}}_1 \quad , \quad \mathbf{y}_2 = \mathbf{r}_2 - \mathbf{G}_2 \cdot \hat{\mathbf{s}}_1$ 
     $f(\mathbf{c}) = \|\mathbf{y}_1 - \mathbf{H}_1 \cdot \mathbf{c}\|^2 + \|\mathbf{y}_2 - \mathbf{H}_2 \cdot \mathbf{c}\|^2$ 
     $\hat{\mathbf{c}}_1 = \arg \min_{\mathbf{c} \in \mathbf{C}} (f(\mathbf{c})) \quad , \quad \Delta_{c,1} = f(\hat{\mathbf{c}}_1)$ 

    If  $(\Delta_{c,o} + \Delta_{s,o}) < (\Delta_{c,1} + \Delta_{s,1})$ 
         $(\hat{\mathbf{c}}, \hat{\mathbf{s}}) = (\hat{\mathbf{c}}_o, \hat{\mathbf{s}}_o)$ 
    Else
         $(\hat{\mathbf{c}}, \hat{\mathbf{s}}) = (\hat{\mathbf{c}}_1, \hat{\mathbf{s}}_1)$ 
}

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**13.** The receiver of claim 9 where said decoder for decoding a channel code is a trellis decoder.

**14.** The receiver of claim 9 where said decoder for decoding a channel code is a convolutional decoder.